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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/525,741
Filing Date: March 14, 2000
Appellant(s): GRIFFITHS, PAUL JOHN

MAILED

SEP 08 2004

GROUP 3600

David L. Wisz
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7 July 2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 4 and 5 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

3,913,940	BATES	10-1975
4,890,823	KOSCHINAT et al.	01-1990
5,234,203	SMITH	08-1993

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by *Bates* (US 3,913,940).

Bates teaches an air spring for a vehicle air suspension system comprising:

a piston (B, see examiner annotated Figure 2) attached to a longitudinal member (6) pivotally attached to a chassis component (1) for pivotal movement about an axis; and

a deformable air cell (A, see examiner annotated Figure 2) having a first end attached to the piston (B) and a second end attached to the chassis component (1), the second end having a greater diameter than the first end and is tapered between the first end and the second end and is of frustro-conical configuration, the piston moving to deform the deformable air cell.

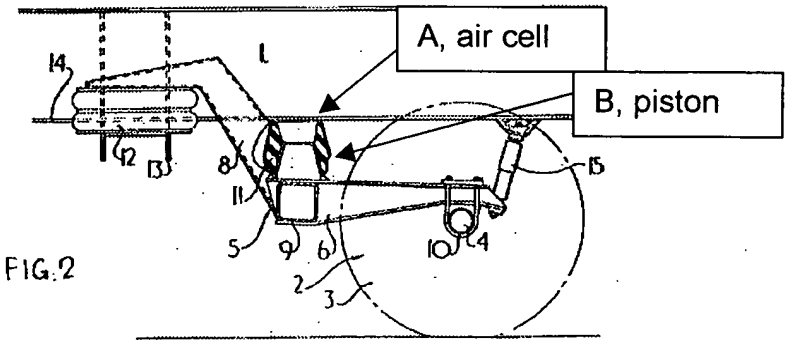


FIG. 2

2. Claim 4 is are rejected under 35 U.S.C. 102(b) as being clearly anticipated by *Bates* (US 3,913,940).

Bates teaches an air spring for a vehicle air suspension system comprising:

a longitudinal member (6) pivotally attached to a chassis component (1) for pivotal movement about an axis;

an axle assembly (4) mounted to the longitudinal member (6)

an air spring (11) having a frustro-conical air cell (A) and a piston (B), the air spring (11) disposed between the longitudinal member (6) and the chassis component (1), the air cell (11) having a first end attached to the piston (B) and a second end attached to the chassis component (1) and a damper (15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Alternatively, if for some reason the deformability of the air cell of Bates is unclear, claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bates* (US 3,913,940) in view of *Koschinat et al.* (US 4,890,823).

Bates teaches an air spring for a vehicle air suspension system comprising:

a piston (B, see examiner annotated Figure 2) attached to a longitudinal member (6) pivotally attached to a chassis component (1) for pivotal movement about an axis.

Bates does not clearly teach a deformable air cell.

Koschinat et al. clearly teaches a deformable air cell (24) having a first end (7) attached to a piston (9) and a second end (17) for attachment to a chassis component, the second end (17) having a greater diameter than the first end (7) and is tapered, (along (7)), between the first end (7) and the second end (17), i.e., tapered at conical element 7, and is of frustro-conical configuration, the piston moving to deform the deformable air cell to absorb effective pressure and tensile forces which occur during compression and rebound of the of the air suspension axles of the vehicle.

It would have been obvious to one of ordinary skill in the art at the time of the invention *to modify the air suspension system of Bates to include* a deformable air cell having a first end attached to a piston and a second end for attachment to a chassis component, the second end having a greater diameter than the first end and is tapered between the first end and the second end and is of frustro-conical configuration, the piston moving to deform the deformable air cell, *as taught by Koschinat et al.,* to absorb effective pressure and tensile forces which occur during compression and rebound of the of the air suspension axles of the vehicle.

4. Alternatively, if for some reason the deformability of the air cell of Bates is unclear, claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bates (US 3,913,940) in view of *Koschinat et al. (US 4,890,823).*

Bates teaches an air spring for a vehicle air suspension system comprising:

a longitudinal member (6) pivotally attached to a chassis component (1) for pivotal movement about an axis;

an axle assembly (4) mounted to the longitudinal member (6); and

a damper (15).

Bates does not clearly teach a deformable air cell.

Koschinat et al. clearly teaches a deformable air cell (24) having a first end (7) attached to a piston (9) and a second end (17) for attachment to a chassis component, the second end (17) having a greater diameter than the first end (7) and is tapered, (along (7)), between the first end (7) and the second end (17), i.e., tapered at conical element 7, and is of frustro-conical configuration, the piston moving to deform the deformable air cell to absorb effective pressure and tensile forces which occur during compression and rebound of the of the air suspension axles of the vehicle.

It would have been obvious to one of ordinary skill in the art at the time of the invention *to modify the air suspension system of Bates to include* a deformable air cell having a first end attached to a piston and a second end for attachment to a chassis component, the second end having a greater diameter than the first end and is tapered between the first end and the second end and is

of frustro-conical configuration, the piston moving to deform the deformable air cell, *as taught by Koschinat et al.,* to absorb effective pressure and tensile forces which occur during compression and rebound of the of the air suspension axles of the vehicle.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Bates and Koschinat et al.*, as applied to claim 4, in view of *Smith (US 5,234,203).*

Bates and Koschinat et al., as applied to claim 4, teach all the limitations of claim 5, including a damper (15) disposed between the axle assembly (4) and the chassis component (1), except wherein the air cell includes an anti-vacuum system and a damper extendable at a rate which allows the anti-vacuum system to equalize a pressure within the air cell with atmospheric pressure as the longitudinal member pivots about the axis from the chassis component.

Smith teaches an anti-vacuum system (90) to equalize a pressure within the air cell with atmospheric pressure and to provide a spring which effectively cushions vibrations through a broad range of vibration frequencies.

It would have been obvious to one of ordinary skill in the rat at the time of the invention to modify the air suspension system of *Bates and Koschinat et al.* to include an anti-vacuum system (90) to equalize a pressure within the air cell with atmospheric pressure, as taught by *Smith*, and to effectively cushions vibrations through a broad range of vibration frequencies.

Note, the damper (*15, Bates*) is understood to be capable of extending at a rate which allows the anti-vacuum system to equalize a pressure within the air cell with atmospheric pressure as the longitudinal member pivots about the axis away from the chassis component because it is well known to use a damper in a suspension system to control the rate of change in distance between the frame and the suspension components.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Bates* in view of *Koschinat et al. (US 4,890,823)* and *Smith (US 5,234,203).*

Bates teaches an air spring for a vehicle air suspension system comprising:

a longitudinal member (6) pivotally attached to a chassis component (1) for pivotal movement about an axis;

an axle assembly (4) mounted to the longitudinal member (6); and

a damper (15) disposed between the axle assembly (4) and the chassis component (1), the damper extendable at a rate which allows the anti-vacuum system to equalize a pressure within an air cell with atmospheric pressure as the longitudinal member pivots about the axis from the chassis component.

Bates does not clearly teach an air cell and an anti-vacuum system.

Koschinat et al. clearly teaches a deformable frustro-conical air cell (24) having a first end (7) attached to a piston (9) and a second end (17) for attachment to a chassis component, the second end (17) having a greater diameter than the first end (7) and is tapered, (along (7)), between the first end

(7) and the second end (17), i.e., tapered at conical element 7, and is of frustro-conical configuration, the piston moving to deform the deformable air cell to absorb effective pressure and tensile forces which occur during compression and rebound of the of the air suspension axles of the vehicle.

Smith teaches an anti-vacuum system (90) to equalize a pressure within the air cell with atmospheric pressure and to provide a spring which effectively cushions vibrations through a broad range of vibration frequencies.

It would have been obvious to one of ordinary skill in the rat at the time of the invention *to modify the air suspension system of Bates to include* a deformable air cell having a first end attached to a piston and a second end for attachment to a chassis component, the second end having a greater diameter than the first end and is tapered between the first end and the second end and is of frustro-conical configuration, the piston moving to deform the deformable air cell, *as taught by Koschinat et al.,* to absorb effective pressure and tensile forces which occur during compression and rebound of the of the air suspension axles of the vehicle, and to further modify the air suspension system of *Bates and Koschinat et al.* to include an anti-vacuum system to equalize a pressure within the air cell with atmospheric pressure, as taught by *Smith*, and to effectively cushions vibrations through a broad range of vibration frequencies.

Note, the damper (*15, Bates*) is understood to be capable of extending at a rate which allows the anti-vacuum system to equalize a pressure within the air cell with atmospheric pressure as the longitudinal member pivots about the axis away from the chassis component because it is well known to use a damper in a

suspension system to control the rate of change in distance between the frame and the suspension components.

(11) Response to Argument

Applicant's "nonanalogous art" arguments as responded to below, are understood to be moot with respect to the 35 USC 102 rejections because "nonanalogous art" arguments are only available with respect to 35 USC 103 rejections.

In response to applicant's argument that, in the prior art of Bates, main spring 11 is nonanalogous art to applicant's air cell 32, where applicant states and argues, 'Bates does not disclose any structure that can fairly be called an "air cell" ', it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992).

In this case, Bates teaches two distinct varieties of air cells, item 12, the "air spring" and item 11, the "main spring". The construction of the main spring is understood to encompass the concept of an "air cell" in that it has a deformable air cell (A, see examiner annotated Figure 2) having a first end attached to the piston (B) and a second end attached to the chassis component (1), the second end having a greater diameter than the first end and is tapered between the first

end and the second end and is of frustro-conical configuration, the piston moving to deform the deformable air cell.

Applicant asserts that the term "air cell" as utilized in this art has specific meaning, however applicant has not presented evidence of a specific meaning of the term within the art.

Applicant further argues the deformable rubber spring 11 is not performing a function as an air cell. The Examiner disagrees where Bates, at column 2, lines 31 – column 3, line 24, and teaches that the deformable rubber spring 11 deflects due to deflection in the vehicle suspension and is therefore reasonably pertinent to the particular problem with which the applicant was concerned because this is consistent with applicant's teaching of the application of the air cell in the specification, see page 3, lines 22-25, where applicant explains the air cell buffers the vehicle against axle and wheel vibration (i.e. suspension deflection).

Note, while the Examiner generally cannot impart unclaimed limitations from the specification into the claims, the Examiner can look to the specification to determine the broadest reasonable interpretation of the claim terms. In the instant application, it is noted that applicant expressly states, see page 3, lines 26-28 "the term air spring as used herein is not intended to be construed narrowly and should be taken to include bellows, air bags, and so forth."

It is further noted that the "air cell" of the claims 1-4 present no physical or structural elements, such as the anti-vaccum system, not found in rubber spring 11 of Bates.

Therefore, it would be obvious to use the main spring of *Bates* in place of the air cell of the instant because the main spring 11 of *Bates* is understood to be the same as applicant's air cell. The Examiner points out that *Bates* teaches it's main spring is made of rubber and has metal end plates bonded to the rubber. The bonding of the metal plates to the main spring reasonably indicates the main spring has a sealed air chamber which could be understood to be an air cell. In contrast, if the metal plates had been attached to the main spring without bonding, it would be less likely there was an effort to form an air tight seal at the end of the main spring and less likely an air cell was formed. Additionally, *Bates*, Figure 2 reasonably appears to indicate the interior of the main spring is hollow which reinforces the understanding that the main spring 11 is an air cell similar to applicant's air cell.

Applicant further unpersuasively asserts Bates does not teach a deformable air cell because the Examiner presented an alternate rejection of claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over *Bates* (US 3,913,940) in view of *Koschinat et al.* (US 4,890,823). The Examiner, in the interest of fully prosecuting the application on the merits, was merely presenting an alternate rejection so that if the deformable nature of rubber spring 11 (as the air cell of Bates) was unclear to applicant, *Koschinat et al.* was shown to clearly teach the deformable frustro-conical air cell and thereby, in combination with Bates, obviate the claimed invention. The Examiner, in the 35 U.S.C. 102(b) rejection of claims 1-3 as being anticipated by *Bates* alone, unequivocally stated Bates teaches a deformable air cell.

Applicant's Patentability Arguments (paragraph B) with regards to whether it is proper to combine the rubber spring 11 of Bates with the plunger piston structure of Koschinat et al. is mute where applicant's arguments refer to elements not applied by the Examiner. The Examiner's arguments were directed at Koschinat et al.'s teachings with respect to deformable air cell 24, the prior art shown in Figure 1. Applicant's arguments are inapplicably directed at the claimed invention of Koschinat et al., shown in Figures 2a-2c and as discussed in column 3, lines 9-25 of Koschinat et al..

Note, Figure 1, of Koschinat et al., does not contain the "outer plunger" argued by applicant.

Applicant argues, again incorrectly applying Figures 2a-2c and elements not cited by the Examiner, that air bellows 24 is not frusto-conical.

First, the Examiner explains that the frusto-conic shape of air cell 11 is clearly seen in the base art applied Bates, where Bates has been presented as teaching Bates a deformable air cell (A, see examiner annotated Figure 2) having a first end attached to the piston (B) and a second end attached to the chassis component (1), the second end having a greater diameter than the first end and is tapered between the first end and the second end and is of frustro-conical configuration, the piston moving to deform the deformable air cell. See also, Bates claim 3.

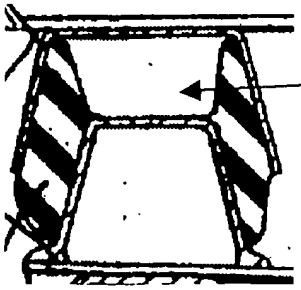
The prior art Koschinat et al. has been applied to Bates as a modification of the base art to more clearly indicate the deformability of the air cell. The elements of Koschinat et al. were closely applied to the existing features of the

base reference to indicate it is known to have a conical air cell which deforms, not as an effort to disregard the teachings of the primary reference.

The Examiner further disagrees because Koschinat et al. teaches, as shown in Figure 1 and explained in column 5, lines 46-50 and Figures 2a-2c explained in column 5, lines 62 to column 6, line 2, that the air cell includes a plunger/piston having conical shape which deforms the bellows/air cell. The plunger/piston area of contact with the bellows/air cell is shown to be of a smaller diameter than upper flanged steel plate end 17 of the air cell/bellows which reasonably indicates the frusto-conical shape of the air cell/bellows, consistent with the base reference Bates.

Finally, applicant argues "combining a simple rubber and metal spring with an anti-vacuum system is nonsensical" ... and ... "at best would have no effect whatsoever upon the base reference" ... and that "a solid rubber spring does not expand or deflate".

Applicant's arguments are not persuasive because the air cell/main spring of Bates is not a "solid rubber spring" as misrepresented by applicant. Nothing in Bates indicates the air cell/main spring is solid rubber and to the contrary, Figure 2 reasonably indicates an air gap through the absence of the cross hatching within the air cell/main spring, as common in air cells/springs.



frusto-conic air cell of main spring (11):

Note, absence of cross hatching reasonably indicates air gap therefore not reasonably understood to be a solid rubber spring

Smith has been combined with Bates and Koschinat et al. to indicate it is well known to include to include an anti-vacuum system to equalize the pressure within the air cell with atmospheric pressure, as taught by *Smith*, useful to effectively cushions vibrations through a broad range of vibration frequencies.

As applicant has improperly characterized the air cell/main spring as a solid rubber spring, rather than an air cell/main spring which indicates an air gap, applicant's arguments are mute. It is the Examiners position that air cells which include automatic or manual venting (such as through anti-vacuum systems) are a well known variety of air cells having the general structure of Bates and Koschinat et al., both of which include an air gap/air cell, and therefore the modification of Bates and Koschinat et al., in further view of Smith is appropriate.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Paul Royal
Examiner
Art Unit 3611

P. Royal
September 7, 2004

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